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ABSTRACT

A study to develop a methodology for discovering how one important notion or semantic category, "frequency of occurrence," is expressed in words, phrases, or other linguistic devices in academic English began with a search for devices expressing that notion, by analyzing text from a news magazine, a New Zealand geography textbook, and a dictionary, and by asking native speakers. Distinctions were made between frequency of occurrence and recurrence, probability, quantity, spatial distribution, and duration, and efforts were made to discover implicit expression of frequency. Almost 300 devices were found, and the Brown corpus of written American English and the parallel LOB corpus of written British English were analyzed by computer for instances of the devices' use. About a third of the devices were not found in the corpora, but a number of other possible types were achieved through the use of attenuators such as "almost" and "nearly," and in combination with quantity words such as "many." It was found that: (1) the technique of asking native speakers about these devices was the most thorough method of discovering the devices; (2) the list is helpful to teachers of English only when it gives information about use in different kinds of texts; (3) the differences between American and British English were not statistically significant; and (4) learners of academic English will encounter many devices for expressing frequency of occurrence, but may have to produce very few. (MSE)

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DISCOVERING HOW A COMMUNICATIVE NOTION IS EXPRESSED IN ENGLISH*

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1985

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Semantic approaches to the organization of language teaching, or teaching language as communication as it is sometimes called, have become widely accepted over the last decade. But there can be little doubt that although teaching a language as an applied or functioning system has an intuitive appeal for many teachers and learners alike, it is easier to advocate than to achieve. It is not hard to persuade teachers that their learners need to know how to understand or express the language of such notions as obligation, generalization, cause and effect, or frequency of occurrence. But what is the language of these and other important notions? What words, phrases or other linguistic devices are used to express them?

A glance at contemporary teaching materials will show that the linguistic devices taught are apparently chosen on the basis of the intuitions of material writers or teachers, rather than on any more empirical basis. In this paper I wish to describe a methodology for discovering how a particular notion is expressed, which will I believe lead to more empirical approaches to materials development. The semantic category or notion I will discuss to illustrate this methodology is 'frequency of occurrence', and how it is expressed in English for academic purposes.

In the preparation of many classroom materials, it is as if the following chain of events occurs. The writer decides that the notion of, say, 'frequency of occurrence', should be included in a course, perhaps because this notion appears in a syllabus or simply because it seems self-evidently important that a learner

FL 015 122

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of English needs to understand or express how often something happens. Thus, for example, Wilkins's classic 1972 paper, which sketched an outline notional syllabus and which became the basis for much of the innovation over the following decade, contained this section on frequency:

4. Frequency

Expressions of frequency or repetition vary from the most general to the most particular. In English one of the meanings of the present tense is to indicate the repetitious or habitual nature of the event. All shades of distinction may be conveyed by the "frequency adverbs" (never ... sometimes ... often ... always) and more precision is obtained when specific time expressions are incorporated into frequency phrases.

e.g. ... on Mondays ... on some Mondays ... etc.

All verb forms will accept a frequentative interpretation. Frequency clauses may be introduced by "when(ever) ..." and catenative verb constructions may be continuative,

e.g. ... he kept asking ...

At the T-level the ability to make broad distinctions of frequency when supplemented by certain more specific expressions would seem to be adequate.

1. Adverbs
   never, sometimes, often, always
2. Verbs
   Present tense (habitual meaning)
3. Adverbials
   on + NP (e.g. Mondays)
   every + { day / week / Monday etc.
   daily, weekly, monthly etc.

(Wilkins 1972: 133)

Wilkins was painting with broad strokes and made modest claims about what he himself called the ad hoc nature of such work. Coursebook writers, however, frequently tell the teacher and learner how "notions" are expressed. An example from a widely-used course on reading and writing for advanced learners of English may illustrate this.

3 Degrees of certainty

When discussing cause and effect, we often want to show how sure we are about the relationship, i.e. the degree of certainty. The following chart is a rough guide as to how we express this.

Percentage	*Frequency*	*Certainty*	*Verb*
100%	always	certainly undoubtedly	will must simple present tense
	usually generally as a rule		should ought to
	often	probably likely presumably	
	sometimes occasionally	possibly perhaps	can could may might
	rarely, seldom hardly ever	unlikely	
0%	never		will not cannot could not simple present tense (negative)

Below are some examples showing possibility about cause and effect in a past event.

The erosion was possibly caused by the wind.
It is possible that the erosion was caused by the wind.
The erosion may have been caused by the wind.
The erosion could have been caused by the wind.

Now, using words from the table above, do this exercise about a cure for the common cold.

These tablets cure the common cold.

Example: 0% These tablets *cannot* cure the common cold.

Write sentences showing a degree of certainty of roughly:
(i) 15% (ii) 40% (iii) 50% (iv) 80% (v) 100%

(Janelle Cooper: Think and Link: An Advanced Course in Reading and Writing Arnold 1979)

We might well ask, however, on what basis the writer chooses to teach these particular linguistic devices to a learner needing to understand or express frequency of occurrence. Are the learners being exposed to the most common ways of expressing frequency of occurrence which they are likely to meet in the language in use? Our disquiet is heightened in the light of research such as that of Pearson (1983) who has shown in her study of the notions of agreement and disagreement that there is a wide gulf between the language native speakers of English use actually to express these notions and the language taught in current textbooks for learners of English as a second language.

In passing, one might point out that approaches to language teaching as form have no such problem. There is a long tradition of using descriptive grammars, and vocabulary counts, to guide selection of what to teach. Unfortunately, such teaching can frequently suffer in credibility and effectiveness arising from the teaching of language as an unapplied system.

Teachers of English for academic purposes, say, to foreign students, will need little convincing that "frequency of occurrence" is a notion which adult learners of English for academic and indeed many other purposes will need to be able to understand or express. Constructions like the following are examples, which occurred in the large corpora which I have analysed with the aid of a computer, and which I will discuss further at the end of this paper.

1 Wash each part of the precipitate **three times** by stirring with 1000 ml of 2% ammonium nitrate.
2 **Usually** Inhelden and Piaget give details of three stages of thinking.
3 The poet in a written tradition who **generally never** blots a line may **once in a while** pause and polish without incurring blame.

4 Drowning is **rarely** witnessed but the **ordinary** course of events is apparently as follows.

But are these ways of expressing frequency of occurrence typical of those which occur in academic English?

How is frequency of occurrence expressed in academic English? Which devices are frequent enough to be worthwhile teaching or learning.

First we must be clear of what we mean by the notion. It is hard to improve on the definition given by Leech and Svartvik (1975: 81) in their Communicative Grammar of English - "Expressions of **frequency** answer the question 'How many times?' or 'How often?'" A search of standard grammars is disappointing in identifying which devices are used to express the notions. Leech and Svartvik themselves, for example, list devices such as **usually, generally, normally** but not **commonly, typically**, or **in most cases.** We find **frequently**, but not **infrequently, now and then** but not **now and again.** Anyone listening to President Reagan during his re-election campaign in 1984 will recall his famous answer to a questioner who asked about increasing taxes. **Over my dead body** was his reply, and his vast audience had no difficulty recognizing this phrase as a synonym for **never.**

Quirk et al. (1972) in the most comprehensive contemporary discussion of the grammar of temporal frequency discuss the use of at least 60 devices over 9 pages of text. The devices are subdivided semantically into devices measuring what is called "definite frequency", which name explicitly the periods and times by which frequency is measured (e.g. **hourly, three days a week**) and those devices which express what is called "indefinite frequency" ranged along the well-known scale expressing **always**, through **usually, often, sometimes** to **never.** In passing one might note that **always** and **never** and their synonyms are not really expressions of indefiniteness. There is much information on possible

word order, and co-occurrence restrictions. However, again, it is easy to think of many apparently common words or phrases which are not listed. Furthermore, teachers of English are well aware that as West noted over thirty years ago it is not efficient, desirable or indeed possible to teach all these devices. Selection is essential. We need to ensure that learners have opportunities to learn the devices they are most likely to meet in the variety of English they are learning.

I might add that a search of semantically organized dictionaries or thesauruses such as those by Roget (1852) and McArthur (1981) similarly provides little help, in that it is not difficult to think of many linguistic devices not listed and we have no idea of the relative importance of those which are listed.

In this study, I began by analysing a corpus of about 60,000 words of text drawn from two sources: first, from a newsmagazine (Newsweek) widely read internationally and which adult learners of English said they wished to be able to read easily; second, from a textbook used by most New Zealand senior high school students to describe the physical and economic geography of New Zealand. Newsweek was chosen for the reason given above and because many topics attributed to 88 different named writers were covered. In Newsweek, every fifth page over four consecutive weekly editions was analysed and every word or phrase expressing frequency of occurrence was noted. Forty-three different linguistic devices or 'types' were recorded (see OHP slide). As expected, words like the following were found: **always, annually, monthly, rarely, seldom, typically.** There were some unexpected ones also - **diurnal,** and **pack-a-day** ("he was a pack-a-day cigarette smoker for 35 years") and **ever** ("did you ever see Jack Kennedy kiss Jackie in public?"), **regularity** ("a sport where records fall with regularity").

Newsweek would not be considered typical academic

English, however. Further, I could think of many more devices which are used to express frequency of occurrence, some of which occurred often enough to appear in the General Service List of English Words (West, 1936). A systematic search through the 6th edition of the Concise Oxford Dictionary revealed 43 devices I had not found in the text analysis. Words or phrases such as **biweekly, every now and then, infrequent, nightly, now and again, quarterly, yearly.** Even so, I could think of many others, since a dictionary search of this kind is subjective, the focus is on individual words, and concentration lapses. Colleagues would ask whether devices such as the following were on my list: **as a general rule, at no time, from time to time, incessantly, once in a while, rush hour** and so on. I then decided to see whether the intuitions of teachers of English could indeed provide a more comprehensive list of devices or types. I asked 10 teachers, all native speakers of English, to write down as many words, phrases or clauses as possible which express frequency of occurrence. They produced 296 types and those that were mentioned by at least two informants are shown in Table 2.

Several of my informants pointed out difficulties in deciding the boundary (if any exists) between the notion of frequency which, of course, implies repeated occurrence, and other notions. For example, **again, seasonal, anniversary, between** (as in "take two pills between meals"), **at full moon** combine notions of repetition, recurrence or iteration as much as frequency.

Similarly, there can be interaction or overlap between frequency and probability,

5 People rarely die of TB nowadays.(frequency)
6 People are unlikely to die of TB nowadays.(probability)

or between frequency and other aspects of quantification such as proportion,

5 People rarely die of TB nowadays.(frequency)
7 Few people die of TB nowadays.(quantity)

or between time frequency and spatial distribution,

8 Instances of TB rarely occur.
9 Instances of TB are few and far between.
10 Instances of TB are thinly distributed.

or between time frequency and duration,

11 It rained throughout the game.
12 They argued throughout their married life.

An answer to a 'how often' question can sometimes be in terms of time or space, e.g. "How often is there a flaw on the record?" **There are three per inch. There are three every five minutes.** In this study, spatial frequency has not been counted.

But perhaps the most important observation made was that whereas some frequency notions have to be marked by words and phrases, others do not and can be expressed by implication or presupposition based on knowledge of the world. Thus whereas the meanings of **usually, often, sometimes** and **seldom** have to be explicitly expressed or marked with a word or phrase, the meanings of **always** and **never** do not. **Always** can be expressed by the form of the verb (usually the stem or present simple form),sometimes with a subordinate clause as well. Thus,

13 Water freezes at 100°.
14 Our pond freezes over in winter.
15 Our pond freezes over after snow has fallen.

Subordinate constructions beginning with conjunctions such as **when, whenever, wherever, after, before, as, while** are frequently used in academic English with the meaning of "always under these conditions". Similarly, some

prepositional phrases can achieve this purpose.

Here are some examples from the data I will report on.

16 The A-effect is obtained only **when** both eyes are used.
17 This loss is acceptably small **when** no correction for carrier recovery is possible.
(cf. Take two pills **when** you feel the pain coming on.)
18 **Whenever** he could afford it he travelled widely to collect fossils.
19 (They) have a natural diameter limitation **wherever** a mesh support cannot be tolerated.
20 A residue is left **after** hydrogen peroxide treatment.
21 The thickness must be increased **before** conductivity is observed.
22 **As** the nuclei increase in size they grow together.
23 the various contraceptive methods they had used **during** their married lives
24 **During** September, the villagers cultivate rice.

In the last two examples, repeated occurrence or frequency is what is being expressed rather than duration. Knowledge of natural, seasonal or scientific phenomena, or cultural or marital practices help direct our interpretation, e.g. **At** Ramadan, fasting occurs.

25 They are almost completely non-volatile **at** low temperatures.

Having made a list of almost 300 'types' or devices for marking 'frequency of occurrence' the next step in the study was to see how many of them are used in academic written English and which are used most frequently, the assumption being that the most commonly used ones will be most useful for our learners.

And it is here that the availability of large corpora of spoken and written English for computer analysis has become of great potential use for applied linguistics.

The Brown corpus of written American English consists of 1,014,312 words of running text. There are 500 samples, each of about 2,000 words in 15 main categories ranging from press reportage to fiction. Section J, the 'learned' samples, is typical of written English for academic purposes, but not of course of any one specific subject area, since there are 80 x 2,000-word samples covering natural sciences, medicine, mathematics, social and behavioural sciences, politics, law, education, humanities, technology and engineering (Francis & Kucera, 1979).

The LOB corpus is a parallel sample of written British English. In all, section J of the Brown and LOB corpora represent at least 160 different authors, and the 320,000 words are equivalent to perhaps 1,000 pages of textbooks used in academic courses, although they are samples of everything published in a given year in the USA and the UK.

A computer search of the words in Table 2 in context was made using the Oxford Concordance Programme (OCP) as software. Section J of the Brown and LOB corpora were searched to find how often each of the words or phrases were used. The results are shown in Table 3. Some occurred once or more, and others did not occur at all. Table 4 rank orders the devices which occurred 10 times or more.

It is apparent that quite a number of devices are common enough to be learned, and that the list differs somewhat from the normal list of "adverbs of frequency" taught to learners. Most striking is the large number of ways of expressing frequency by means of a simple verb form in the main clause and a time conjunction and subordinate clause. Quirk et al. (1972) give only one example of the use of such a construction (whenever + clause) but as these data show, it is by far the most common way of indicating the meaning of "always under conditions" in the variety of English being used in this study.

Next, frequency of occurrence is marked in texts by not just adverbs. In fact, **(in) general** is more likely

to occur than **generally**, **normal** than **normally**, **common** than **commonly**, **ordinary** than **ordinarily** and so on.

Although there were about 300 different types identified in this study, 98 of which did not actually occur in the corpora, there are a number of other possible types achieved through the use of attenuators.

Take for example the use of the word **almost** in **almost invariably**. **Invariably** occurred 10 times altogether. Of these, it was preceded by **almost** on five occasions, i.e. half the time.

Attenuators which can combine with some frequency devices to modify the meaning include:

almost	e.g. almost always, almost invariably, almost never
nearly	e.g. nearly always, nearly all the time
fairly	e.g. fairly commonly, fairly infrequently
pretty (well)	e.g. pretty well all the time, pretty regularly
quite	e.g. quite often, quite commonly
very	e.g. very rarely, very occasionally, very often
ever so	e.g. ever so often
virtually	e.g. virtually continually, virtually always
reasonably	e.g. reasonably often, reasonably typical

Many quantity words can also combine with certain frequency words such as **times** or **occasions** to generate more types than have been listed in this study.

For example, the following synonyms for **often** can be used:

many times/occasions
a large number of times/occasions
innumerable times/occasions
a lot of times/occasions
etc.

Further, when a quantifier can be used before **times** or **occurrence**

we sometimes find the quantifier alone used, e.g. **We go there a lot**.

Table 5 lists the types and the number of times they occurred in the corpora categorized according to the scale from **always** to **never**, which I referred to at the beginning of the paper. With the exception of **never** which really is the most important type found for expressing zero frequency, and **often** which is more frequent than all the other semantically equivalent types put together, the picture is clearly that no one type emerges as adequate for a learner to master to understand how any one part of the scale is expressed.

Table 6, dealing with how iteration is expressed, provides information which course planners and teachers can use to guide them.

I believe that the following conclusions can be drawn from this study.

1 Of the three methods used to discover the types or ways we use to express frequency of occurrences, the intuitions of native speakers produced by far the largest range of devices. Nevertheless, the list is not exhaustive, nor can it even be, given the creative potential of language.

2 While native speaker intuitions produced a large number of types, such a list is of little help to teachers, without an indication of relative frequency in particular registers. This study, using computer analysis of written academic English, has provided that information on frequency for just one register - written academic English. The same could be done for spoken and written English.
Many of the types which did not occur in the corpora (about a third of the total) might be characteristic of spoken varieties of English, including spoken academic English.

3 The analysis made possible a description of differences between US and British English in the texts, but the differences were not highly significant, and, where there were small numbers of tokens, it was impossible to make valid comparisons. There does appear to be a fairly 'international' academic written English. Some differences among the more frequent types are seen as follows:

	LOB (UK)	Brown (USA)	Total
common	42	62	104
constant	53	23	76
daily	6	22	28
in general	49	75	124
generally	42	36	78

On the other hand the following are examples where there was remarkable similarity of frequency:

	LOB (UK)	Brown (USA)	Total
always	55	55	110
frequently	19	17	36
never	30	36	66
on (some) occasions	13	14	27
sometimes	35	34	69

As an example of a possible comparison of usage in UK and US English, it is interesting to consider ways of expressing 'usual occurrence'. Taking those occurring 10 or more times in total, the results in the following table show that there were 329 tokens in LOB compared with 374 in Brown. The British writers were more inclined to use **usually, generally, commonly** and **regular** than their American counterparts. For the other types, the reverse was the case.

Comparison of UK English (LOB) and US English (Brown)

	LOB (UK)	Brown (USA)
in general	49	75
normal	54	65
usually	58	47
common	42	62
generally	42	36
typical	16	22
ordinary	15	15
usual	14	13
normally	10	16
commonly	14	10
regular	10	8
for the most part	5	5
	329	374

Again, I would stress that in this kind of study not too much should be made of crude numbers. Such analysis is not simply a crude count of word forms. Each token or use of a device has to be looked at in its context - in this case, about 20 words - to see if its use is expressing frequency of occurrence. There is undoubted subjectivity and the methodology could be improved if more than one person checked that all the tokens were indeed expressing frequency of occurrence. When in doubt, I omitted words or phrases from the count. Nevertheless I believe this kind of study does give us more reliable information on which to organize curriculum materials than intuitive ideas of relative importance, or unedited texts which may not expose learners to important words or phrases.

4 Learners of English for academic purposes are clearly likely to encounter a large number of linguistic devices which express the notion of frequency of occurrence. They may need to produce very few. The importance of the difference between a receptive vocabulary and a productive vocabulary is well appreciated by teachers, and here again these data can help guide materials development.

It would seem that when these results are compared with the General Service List of English Words, Michael W st's classic guide for teachers, now almost fifty years old, the General Service List needs to be and can be supplemented.

(See OHP slide comparing Table 4 with West) –(Table 7)

Finally, if we accept Ogden's view that "words are not useful because they are frequent, but frequent because they are useful", it can be seen that both in terms of the large number of linguistic devices used for expressing frequency of occurrence, and in terms of the high frequency of some of them. that it is important to know how to understand and express this notion. The methodology described here is a way of isolating a large range of types. Computer analysis of large representative samples can indicate the relative importance of these types in different registers - and this is surely an improvement on largely impressionistic bases for materials development.

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TESOL '85
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Discovering how a communicative notion is expressed in English

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Table 1

1 Wash each part of the precipitate **three times** by stirring with 1000 ml of 2% ammonium nitrate.

2 **Usually** Inhelder and Piaget give details of three stages of thinking.

3 The poet in a written tradition who **generally never** blots a line may **once in a while** pause and polish without incurring blame.

4 Drowning is **rarely** witnessed but the **ordinary** course of events is apparently as follows.

5 People rarely die of TB nowadays. (frequency)

6 People are unlikely to die of TB nowadays. (probability)

7 Few people die of TB nowadays. (quantity)

8 Instances of TB rarely occur.

9 Instances of TB are few and far between.

10 Instances of TB are thinly distributed.

11 It rained throughout the game.

12 They argued throughout their married life.

13 Water freezes at 0°.

14 Our pond freezes over in winter.

15 Our pond freezes over after snow has fallen.

16 The A-effect is obtained only **when** both eyes are used.

17 This loss is acceptably small **when** no correction for carrier recovery is possible.
(cf. Take two pills **when** you feel the pain coming on.)

18 **Whenever** he could afford it he travelled widely to collect fossils.

19 (They) have a natural diameter limitation **wherever** a mesh support cannot be tolerated.

20 A residue is left **after** hydrogen peroxide treatment.

21 The thickness must be increased **before** conductivity is observed.

22 **As** the nuclei increase in size they grow together.

23 The various contraceptive methods they had used **during** their married lives

24 **During** September, the villagers cultivate rice.

25 They are almost completely non-volatile **at** low temperatures.

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Table 2 **Linguistic devices used for expressing the notion of 'frequency of occurrence'**

a bit, a fair bit, again, again and again, a good deal, a great deal, a little, all along, all the time, a lot, alternate, always, anniversary, annual, annually, as a general practice, as a (general) rule, as much as possible, as necessary/needed/required, as often as not, as often as (possible), at (Christmas), at gaps of, at intervals of, at all times, at no time, at times, between (meals), biannual, biannually, biennial, biennially, bimonthly, biweekly, characteristically, common, commonly, consistent, consistently, constant, constantly, continual, continually, continuous, continuously, custom, customarily, customary, cycle, cyclic, cyclical, cyclically, daily, (a/per) day, day after day, day by day, day in day out, (from) day to day, diurnal, diurnally, each (April), endemic, ephemeral, ephemerally, episode, episodic, ever, ever and anon, for ever and ever, every (Sunday), every (second) (week), every now and again, every now and then, every once in a while, every other, every so often, every time, few and far between, fitful, fitfully, fits and starts, fluctuate, fluctuation, for the most part, fortnightly, frequency, frequent, frequently, from time to time, from (week to week), (in) general, generally, habit, habitual, habitually, happen, hardly ever, (an/per) hour, hour after hour, peak hour, rush hour, hourly, how frequently, how often, how many times, in (the winter), in most cases, in some cases, in some instances, incessant, incessantly, infrequency, infrequent, infrequently, intermittent, intermittently, (five year) intervals, invariable, invariably, irregular, irregularly, just this once, less (often), many a time, many is the time, (a/per) minute, (a/per) month, month after month, monthly, morning noon and night, more (often), more often than not, most (weekends), most of the time, mostly, never, never ever, night, nightly, normal, normally, not at all, not ever, not frequent, not frequently, not in a thousand years, not infrequent, not infrequently, not often, not very often, now and again, now and then, on each occasion, on every occasion, on no occasion, occasionally, occur, occurrence, odd, off and on, oft, often, on (Monday(s)), on and off, on and on, on occasion, on the hour, once, once (a/per) (hour), once again, once each (week), once every (week), once in a blue moon, once in a lifetime, once in a while, once more, ordinary, ordinarily, over again, over and over (again), over my dead body, pack-a-day, per (annum), period, periodic, periodical, periodically, permanent, permanently, perpetual, perpetually, predictability, predictable, predictably quarter, quarterly, rare, rarely, rarely ever, rarity, rate, recur, recurrence, recurrent, recurrently, regular, regularity, regularly, repeat, (its) repeated (application), repeatedly, repetition, repetitious, repetitiously, repetitive, repetitively, rhythm, rhythmic, rhythmical, rhythmically, rife, ritual, ritually, rotate, rotation, rotational, rotationally, routine, routinely, scarce, scarcely, scatter, season, seasonal, seasonally, (a/per) second, seldom, seldomly, session after session, seven days a week, eight days a week, some (weekends), sometimes, sparse, sparsely, spasmodic, spasmodically, sporadic, sporadically, strange, strangely, strangeness, successive, successively, temporary, temporarily, the whole time, the (first) time, thick, thick and fast, thickly, thin, thinly, (three) times, time after time, time and again, time and time again, times without number, (19) times (out of 20), twenty-four hours a day, twice, twice (a/per) (week), typical, typically, under (certain) circumstances, under no circumstances, unusual, unusually, usual, usually, (a/per) week, weekly, whenever, wherever, without ever, (a/per) year, yearbook, yearly. Certain subordinate clauses and prepositional phrases also mark frequency of occurrence.

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Table 3 (a) Linguistic devices used for expressing the notion of 'frequency of occurrence' which occurred at least once in Section J of the Brown and LOB corpora

again, again and again, a great deal, a little, all the time, alternate, always, anniversary, annual, annually, as a (general) rule, as much as possible, as necessary/needed/required, at (Christmas), at intervals of, at all times, at no time, at times, between (meals), characteristically, common, commonly, consistent, consistently, constant, constantly, continual, continually, continuous, continuously, custom, customarily, customary, cycle, cyclic, cyclical, daily, (a/per) day, day after day, day by day, (from) day to day, diurnal, diurnally, each (April), episode, ever, for ever and ever, every (second) (week), every other, fluctuation, for the most part, frequency, frequent, frequently, from time to time, from (week to week), (in) general, generally, habit, habitual, habitually, happen, (an/per) hour, hour after hour, peak hour, rush hour, hourly, how frequently, in (the winter), in most cases, in some cases, in some instances, infrequent, intermittent, intermittently, (five year) intervals, invariably, irregular, irregularly, less (often), (a/per) minute, (a/per) month, month after month, monthly, more (often), most of the time, mostly, never, night, nightly, normal, normally, not at all, not ever, not often, not very often, occasionally, occur, occurrence, odd, often, on (Monday(s)), once, once (a/per) (hour), once again, once in a while, once more, ordinary, ordinarily, over again, over and over (again), per (annum), period, periodic, periodically, permanent, permanently, perpetually, predictability, predictable, quarter, quarterly, rare, rarely, rarely ever, rate, recur, recurrence, recurrent, regular, regularity, regularly, repeat, (its) repeated (application), repeatedly, repetition, repetitious, rhythm, rhythmic, rhythmically, rife, ritual, rotate, rotation, rotational, rotationally, routine, scarce, scarcely, scatter, season, seasonal, (a/per) second, seldom, session after session, some (weekends), sometimes, sparse, sporadic, sporadically, strange, strangely, strangeness, successive, successively, temporary, temporarily, the (first) time, thick and fast, (three) times, time and again, (19) times (out of 20), twice, typical, typically, under (certain) circumstances, under no circumstances, unusual, unusually, usual, usually, (a/per) week, weekly, whenever, wherever, without ever, (a/per) year, yearbook, yearly. Certain subordinate clauses and prepositional phrases.

(b) Linguistic devices used for expressing the notion of 'frequency of occurrence' but not occurring in the corpora

a bit, a fair bit, a good deal, all along, a lot, as a general practice, as often as not, as often as possible, at gaps of, biannual, biannually, biennial, biennially, bimonthly, biweekly, cyclically, day in day out, endemic, ephemeral, ephemerally, episodic, ever and anon, every (Sunday), every now and again, every now and then, every once in a while, every so often, every time, few and far between, fitful, fitfully, fits and starts, fluctuate, fortnightly, hardly ever, how often, how many times, incessant, incessantly, infrequency, infrequently, invariable, just this once, many a time, many is the time, morning noon and night, more often than not, most (weekends), never ever, not frequent, not frequently, not in a thousand years, not infrequent, not infrequently, now and again, now and then, on each occasion, on every occasion, on no occasion, off and on, oft, on and off, on and on, on the hour, once each (week), once every (week), once in a blue moon, once in a lifetime, over my dead body, pack-a-day, periodical, perpetual, predictably, rarity, recurrently, repetitiously, repetitive, repetitively, rhythmical, ritually, routinely, seasonally, seldomly, seven days a week, eight days a week, sparsely, spasmodic, spasmodically, the whole time, thick, thickly, thin, thinly, time after time, time and time again, times without number, twenty-four hours a day, twice a/per (week)

20

Table 4 Linguistic devices used for expressing the notion of 'frequency of occurrence' which occurred 10 or more times in the corpora of 320,000 words

Subordination when - 189 whenever - 11 after - 59 before - 35 as - 19	313
rate	210
during (September)	186
often	133
(in) general	124
normal	119
always	110
usually	105
common	104
generally	78
constant	76
sometimes	69
never	66
again	63
occur	53
occurrence	46
each (year)	43
typical	38
frequently	36
repeated	36
ordinary	30
annual	30
in/under (certain) circumstances	29
daily	28
on (some) occasions	27
usual	27
frequency	27
normally	26
cycle	25
per (second)	25
commonly	24
consistent	24
(a/per) year	24
scatter	22
(a/per) day	22
ever	21
rare	19
the (first) time	19
regular	18
unusual	17
ritual	15
rotate	15
continuously	14
occasionally	14
rarely	14
permanent	13
(three) times	13
continuous	12
frequent	12
in some cases	12
happen	11
for the most part	10
invariably	10
most (often)	10
repeat	10
seldom	10
successive	10
twice	10
temporary	10

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Table 5 — **Scale of Temporal Frequency**

Continuous/Continual frequency "Always"		Usual occurrence "Usually"		High frequency "Often"		Low frequency "Sometimes"		Zero frequency "Never"
when ...	189	(in) general	124	often	133	sometimes	69	never
during	186	normal	119	frequently	36	in/under (certain) circumstances	29	at no time
always	110	usually	105	repeated	36	on some occasions	27	not ever
constant	76	common	104	frequent	12	scatter	22	not at all
after ...	59	generally	78	repeatedly	9	rare	19	without ever
before ...	35	typical	38	repetition	8	unusual	17	under no circumstances
consistent	24	ordinary	30	a great deal	3	occasionally	14	
ever	21	usual	27	many times	3	rarely	14	
as ...	19	normally	26	again and again	2	in some cases	12	
continuously	14	commonly	24	time and again	2	seldom	10	
permanent	13	regular	18	rife	1	occasional	8	
continuous	12	for the most part	10	thick and fast	1	at times	7	
whenever ...	11	custom	8	innumerable times	1	periodic	7	
invariably	10	more often	8	often times	1	strange	7	
constantly	8	more often than not	8	session after session	1	from time to time	6	
consistently	7	ordinarily	6	repetitious	1	odd	6	
at all times	5	mostly	6	as much as possible	1	sporadic	5	
wherever ...	4	regularly	6			intermittent	5	
permanently	4	customary	5			irregular	5	
while ...	4	routine	5			scarcely	5	
continual	4	in most cases	4			in some instances	3	
continually	4	habitually	3			a number of times	3	
from day to day	3	customarily	2			several times	3	
all the time	2	habitual	2			irregularly	3	
day by day	2	typically	2			as necessary/needed/ required	3	
day after day	1	19 times out of 20	2			periodically	2	
for ever and ever	1	as a general rule	1			intermittently	2	
month after month	1	characteristically	1			not often	2	
perpetually	1	habit	1			not very often	2	
		most of the time	1			scarce	2	
		regularity	1			strangely	2	
						on occasion	1	
						once in a while	1	
						sporadically	1	
						at other times	1	
						infrequent	1	
						less often	1	
						rarely ever	1	
						sparse	1	
						strangeness	1	
						unusually	1	

Table 6 Occurrence, Iteration and 'Definite Frequency'

Occurrence		Iteration		'Definite Frequency'	
rate	210	again	63	each (day, week, year etc.)	43
occur	53	cycle	25	annual	30
occurrence	46	ritual	15	daily	28
frequency	27	rotate	15	a/per year	24
happen	11	repeat	10	the (first) time	19
temporary	10	successive	10	(three) times a/per (week)	13
temporarily	6	rotation	7	an/per hour	9
episode	2	recurrent	5	a/per month	7
how frequently	1	season	5	a/per quarter	7
		period	5	weekly	7
		rotational	5	annually	5
		successively	5	at (Ramadan)	5
		cyclic	4	monthly	4
		recurrence	4	on (Mondays)	4
		seasonal	4	diurnal	4
		predictable	3	a/per second	4
		once again	3	a/per day	3
		once more	3	each time	3
		fluctuation	2	on alternate (weeks)	3
		rhythmic	2	every second (week)	2
		anniversary	1	on (Monday)	2
		between (meals)	1	a/per night	2
		cyclical	1	a/per week	2
		over again	1	at (weekly) intervals	2
		over and over (again)	1	diurnally	1
		recur	1	every other (week)	1
		rotationally	1	nightly	1
		predictability	1	once a/per (week)	1
		rhythm	1	quarterly	1
		rhythmically	1	yearly	1
		peak hour (use)	1	for the hundredth time	1
		rush hour (traffic)	1	a/per minute	1
				a/per annum	1
				in (Winter)	1
				yearbook	1

Table 7 Comparison of Frequencies in the LOB-Brown Corpora and West*

	LOB-Brown	West
rate	210	37
often	133	85
(in) general	124	42
normal	119	-
always	110	?
usually	105	37
common	104	18
generally	78	43
constant	76	-
sometimes	69	49
never	66	197
again	63	?
occur	53	-
occurrence	46	-
each (year)	43	?
typical	38	-
frequently	36	19
repeated	36	4
ordinary	30	31
annual	30	-
in/under (certain) circumstances	29	?
daily	28	34
on (some) occasions	27	26
usual	27	26
frequency	27	-
normally	26	-
cycle	25	-
per (second)	25	39
commonly	24	11
consistent	24	-
(a/per) year	24	?
scatter	22	?
(a/per) day	22	?
ever	21	104
rare	19	15
the (first) time	19	?
regular	18	11
unusual	17	-
ritual	15	-
rotate	15	-
continuously	14	?
occasionally	14	12
rarely	14	?
permanent	13	24
(three) times	13	63
continuous	12	?
frequent	12	10
in some cases	12	?
happen	11	32
for the most part	10	15
invariably	10	-
most (often)	10	?
repeat	10	7
seldom	10	10
successive	10	-
twice	10	-
temporary	10	-

*The frequencies in West have been adjusted to be comparable with LOB-Brown.